Amendments to the Claims:

Please cancel claim 1 without prejudice or disclaimer of the subject matter thereof, rewrite claim 2 in independent form and add the following new claims.

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (canceled)

2. (currently amended) A motor drive system for an AC motor ~~according to Claim 1,~~ comprising:

an AC motor;

an inverter for generating a drive signal to drive said AC motor by using a sinusoidal continuous current;

a controller for controlling said inverter by generating a pulse-width-modulated signal; and

a power supply for supplying electric power to said inverter; and a current-detecting means for detecting an inverter current supplied to said inverter from the said power supply;

wherein a sampling means is provided for sampling said inverter current detected by said current-detecting means in said inverter current; and

wherein said sampling means samples said inverter current in a time consisting of 33~67% of said power conduction time from a rise-up time of the inverter current.

3. (original) A motor drive system for an AC motor according to Claim 2, further comprising an averaging process means for averaging sampled values from said sampling means.

4. (original) A method of controlling an AC motor by said motor drive system according to Claim 3, wherein said averaging process uses a 1/6-period moving average of drive periods in said drive signal.

5. (original) A method of controlling an AC motor by said motor drive system according to Claim 2, comprising the steps of further providing said motor drive system with an arithmetic operation means for arithmetic operation of calculating at least one of an active current and a reactive current of said AC motor, and performing said arithmetic operation at every 1/6 period of said drive period in said drive signal by using sampled values output from said sampling means.

6. (original) A motor drive system for an AC motor according to Claim 2, further comprises a generator for generating a periodic function dependent on a frequency of said drive signal and an arithmetic operation means for calculating at least one of an active current and a reactive current of said AC motor, and wherein said arithmetic operation is performed by using said periodic function and sample values output from said sampling means.

7. (original) A method for controlling an AC motor according to Claim 5, comprising the steps of calculating an exciting current component on the basis of a magnetic flux axis of said AC motor and a torque current component orthogonal to said

magnetic flux axis by using said active and reactive currents and controlling said AC motor by using at least said exciting current component and said torque current component.

8. (original) A motor drive system for an AC motor according to Claim 2, further comprises a plurality of said sampling means and a phase current reproducing means for reproducing phase currents of said AC motor by using said plurality of sampling means and sample values output from said plurality of sampling means.

9. (original) A motor drive system for an AC motor according to Claim 2, wherein said inverter, said controller and said current detecting means are modularized.

10. (original) A method for controlling an AC motor by a motor drive system which comprises an AC motor; an inverter for generating a drive signal to drive said AC motor by using a sinusoidal continuous current; a controller for controlling said inverter by generating a pulse-width-modulated signal on the basis of a 3-phase command voltage of said AC motor and a carrier signal of said AC motor; a power supply for supplying electric power to said inverter; and a current-detecting means for detecting an inverter current supplied to said inverter from the said power supply, said method comprising the steps of:

providing sampling means for sampling said inverter current;

using an intermediate time between a positive peak value and a negative peak value of said carrier signal as a sampling trigger; and

sampling said inverter current values by said sampling means in response to said trigger.

11. (original) A method for controlling an AC motor by a motor drive system which comprises an AC motor; an inverter for generating a drive signal to drive said AC motor by using a sinusoidal continuous current; a controller for controlling said inverter by generating a pulse-width-modulated signal on the basis of a 3-phase command voltage of said AC motor and a carrier signal of said AC motor; a power supply for supplying electric power to said inverter; and a current-detecting means for detecting an inverter current supplied to said inverter from the said power supply, said method comprising the steps of:

sampling means for sampling said inverter current is provided;

comparing said 3-phase command voltage with positive or negative peak values of said carrier signal;

selecting positive peak values or negative peak values of said carrier signal on the basis of comparison results,

using times of selected positive peak values or negative peak values as a trigger, and

sampling said inverter current by said sampling means in response to said trigger.

12. (new) A motor drive system for an AC motor comprising:

an AC motor;

an inverter for generating a drive signal to drive said AC motor by using a sinusoidal continuous current;

a controller for controlling said inverter by generating a pulse-width-modulated signal;

a power supply for supplying electric power to said inverter; and

a current-detecting means for detecting an inverter current supplied to said inverter from the said power supply;

wherein a sampling means is provided for sampling said inverter current detected by said current-detecting means in said inverter current; and

wherein said controller controls an electrical angular frequency of said AC motor based on said inverter current.

13. (new) A motor drive system for an AC motor according to claim 12, wherein said AC motor is a permanent magnetic type synchronous motor.

14. (new) A motor drive system for an AC motor according to claim 12, wherein said AC motor is an induction motor.

15. (new) A motor drive system for an AC motor according to claim 12, wherein said AC motor is a reluctance motor.

16. (new) A motor drive system for an AC motor according to claim 12, wherein said controller controls the electrical angular frequency of said AC motor based on said inverter current by compensating an electrical angular frequency command of said AC motor with a compensation value based upon said inverter current.

17. (new) A motor drive system for an AC motor according to claim 16, wherein said controller includes a filter for filtering an output of said sampling means and a

compensator for providing the compensation value which is added to the electrical angular frequency command of the AC motor on the basis of the output of the filter.

18. (new) A motor drive system for an AC motor according to claim 12, wherein said controller controls the electrical angular frequency of said AC motor based on said inverter current to enable driving of said AC motor without utilization of a rotator position sensor of said AC motor.